Asia-Pacific Chiropractic Journal

Modern revelations

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Narrative: This paper provides numerous examples emerging from contemporary research that justify why the pioneer Chiropractors stood their ground despite the skepticism stemming from medical harassment. These stalwarts had seen the remarkable results of their art and fought to maintain its practice despite the arrests, beatings, humiliation, and imprisonment. Chiropractic is so much more than pain management;

Indexing terms: Chiropractic; philosophy; Type O; Organic disorders; clinical management.

Introduction

> 'Is it possible that the science of Chiropractic has arrived before its time?' (1)
>
> DD Palmer, Founder of Chiropractic

My answer to DD Palmer's question is a resounding, but qualified, '*yes*'! Although most people may believe that Chiropractic care may help most low back and neck pain cases, aka, musculoskeletal (Type M) disorders, they certainly don't understand how Chiropractic care works nor the logic behind this non-drug, non-surgical treatment to help other health problems that science is only now beginning to explain a century later. There remains much skepticism about how visceral/organic (Type O) disorders may be helped by a simple Chiropractic adjustment.

… 'we must be thankful for our pioneers who survived the medical war to keep alive an ageless healing art for people today to benefit …'

It's an enigma that was hindered by an antagonistic medical profession eager to keep the public in the dark and ready to prescribe more opioid painkillers and render more spine surgery while disseminating disinformation about its Chiropractic rival and favours to politicians to protect its lucrative market share of $134.5 billion as of 2016.

1. DD Palmer, The Chiropractor's Adjuster: The Text-Book of the Science, Art and Philosophy of Chiropractic (Portland, Oregon: Portland Printing House) (1910):847.

While the public has completely bought the medical 'bad blood' as the cause of disease, they are ignorant of a more sophisticated notion of 'bad nerve' function that Chiropractic professes. Hopefully this paper will present many scientific studies to give readers a better understanding how spinal adjustments affect your entire body, including your 'shrinking brain'.

Over a century ago the Founder of Chiropractic, DD Palmer, postulated '*Is it possible that the science of Chiropractic has arrived before its time*'? (2) on the title page of his 1007-page masterpiece work in 1910, *The Chiropractor's Adjuster: The Text-Book of the Science, Art and Philosophy of Chiropractic*, in which he postulated the embryonic principle of Chiropractic care was founded on 'tone' that was a far cry from the medical profession's germ theory, thereby setting the stage for the medical war against Chiropractic.

Of course, the science was more theoretical and anecdotal than empirically proven, but he was proven correct years later by both chiropractic and medical evidence.

According to Robert A. Leach, DC, FICC, author of The Chiropractic Theories:

> 'Amazingly, Palmer's concept of altered 'tone' of the nervous system being the cause of disease then has some support in the current neurophysiologic literature regarding facilitation and sympathicotonia. While ischaemia may or may not be the link, it is apparent that through various mechanisms abnormal sympathetic tone leads to aberrant functioning of sympathetic nerves that innervate visceral smooth muscle'. (3)

My paper will unpack this succinct explanation by Dr Leach with essays by many modern researchers who have also explained the further reaches of the neurophysiology and the impact of spinal adjustments.

Today modern research has increased our knowledge of the relationship between spinal manipulative therapy, the nervous system, '*somatovisceral reflex*' or, in regards to the spine, the '*spinovisceral reflex*' causing organic disorders by affecting the circuitry and chemistry of the brain.

Certainly, the real controversy pits those who understand and accept anatomical issues like joint dysfunction to help neck and back pain, and the other camp that cannot understand how the same anatomical issues in the spine and musculoskeletal system also may affect physiologic regulation and function as well.

Indeed, the Big Idea of Chiropractic suggests the actual scope of Chiropractic is as vast as the nerve system itself. The original iconic Chiropractors, the Palmer father and son, DD and BJ Palmer, were not interested in low back pain or whiplash, the typical musculoskeletal disorders that Chiropractors commonly treat so successfully.

Instead, the Palmers were interested in the function of the body's organs and overall homeostasis via the nerve system. They were, in effect, among the earliest neuroscientists who lectured on the affect of spinal dysfunction on neurophysiology caused by interference to the nerve system via mechanical dysfunction in the 137 synovial spinal joints.

Although a mouthful, it is that simple.

Andrew T. Still, the founder of osteopathy, also taught the value of the physiological benefits of treating 'spinal lesions', his synonym for DD Palmer's 'vertebral subluxation'. For example, as far back as 1899, C. Hazzard, an osteopathic physician, wrote about this duality of treatment for either structural problems or functional issues:

2. DD Palmer, The Chiropractor's Adjuster: The Text-Book of the Science, Art and Philosophy of Chiropractic (Portland, Oregon: Portland Printing House) (1910):847.

3. Leach, RA, The Chiropractic Theories, Fourth Edition, LWW (2004): 303.

> 'In our treatment of the spine there are two points which we may take into consideration … In the first place we may wish to treat the spine itself. In the second place, we may wish to reach, by treating the centres along the spine, the viscera to which these nerves run. It is not always possible to disassociate these in your practice'. (4)

The problem with the concept of neurophysiologic regulation through manual therapy was that it was ahead of its time and may still be for most. You have to remember that at the first turn of the 20th Century, America was still in the horse and buggy era, and so was medical science.

Research could not explain the belief that the central nervous system controlled function, and thus, interference to the nerve system created '*dis-ease*' as the Palmers described the change in homeostasis, but this '*dis-ease*' had nothing to do to germs; it had to do with spinal joint dysfunction causing nerve-related health problems.

Consequently, the Palmers resorted to what is now considered rather crude scientific terms and metaphysical concepts to explain the neurological component of chronic diseases. They spoke in terms of '*innate intelligence*' and other vitalistic terms to describe the mechanisms of nerve dysfunction. To this day, some fundamentalist advocates still preach this metaphysical bio-theosophy as chiropractic's sine qua non according to historian Joseph Keating, PhD. (5)

> 'Chiropractors have gained some credibility in recent years as providers of quality health care services for patients with disorders of the musculoskeletal system. However, the Chiropractic profession has long been and continues to be ridiculed for advocating the broader clinical utility of manipulative procedures, for example, for patients with cancer, diseases of the viscera, cardiovascular disorders and psychiatric conditions. The persistence of these broader claims despite the absence of scientific evidence is partly attributable to dogmatic adherence to rigid, unchanging, and largely unchallenged theories of disease causation (e.g., subluxation) and intervention. Indeed, some Chiropractors take pride in the supposedly unchanging character of Chiropractic paradigms'. (6)

Rather than the '*unchanging character of Chiropractic paradigms*', I would suggest it as an evolving paradigm. Although Chiropractors saw the impact of spinal adjustments upon patients' health, they attempted to explain this in terms that were used by healers at the turn of the late 1890s and early 1900s.

DD Palmer, the founder of the Chiropractic profession, in 1910 wrote on the title page of his book, *The Chiropractor's Adjustor*, that the main principle of chiropractic was '*Founded on Tone*'. It was Palmer's contention that too much tone (spasm) or too little tone (flaccidity) will create a state of inflammation in tissues and altered function, a legitimate concept still today, but one he resorted to vitalistic terms to explain.

> 'Life is the expression of tone. In that sentence is the basic principle of Chiropractic. Tone is the normal degree of nerve tension. Tone is expressed in functions by normal elasticity, activity, strength and excitability of the various organs, as observed in the state of health. Consequently, the cause of dis-ease is any variation of tone, nerves too tense or too slack.
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> 'The nerve system is the channel thru and by which life-force, the energy which gives innervation to the essential functions of respiration and circulation, is transmitted. The

4. Hazzard C: Principles of Osteopathy, 3e. Kirksville, MO, Charles Hazzard, 1899.
5. Keating, JC, Toward a Philosophy of the Science of Chiropractic, 1992, pp. 15.
6. Keating, JC, D.D. Palmer's Forgotten Theories of Chiropractic, A Presentation to the Canadian Memorial Chiropractic College, February 18, 1995.

two latter are the functions upon which life depends. They are carried on in proportion to the innervating force which, as we have noticed, may be either excessive or deficient, either condition causing disease and even death.

'The involuntary portion of the nerve system and muscles which contract by nerve stimuli must be in normal tone in order to execute the normal amount of functionating for a health existence.

'Excessive tonicity causes erethism, an abnormal increase of nerve irritability, an augmentation of vital phenomena in organs or tissue. Deficient tonicity causes atony or weakness, a lack of vitality.

'Tone is a term used to denote a normal degree of vigour, tension, activity, strength and excitability of nerves and muscles, as observed in a state of health, the effect of tonicity. Tonicity determines the tone. Excessive tonicity causes an augmentation of vital phenomena; a deficiency of tonicity, a want of tone, a loss or diminution of muscular or vital strength'. (7)

According to historian Keating, at this early stage of Chiropractic in the period from 1897 through 1902, DD Palmer believed that displaced anatomy is the cause of inflammation and disease. By the 1908-10 period Palmer seemed to think of the nerves as a meshwork stretched over the bony framework of the body; the normal tension of the nerves was determined by the proper alignment of the skeleton. Palmer had come to believe that subluxations usually produced an increase in nerve tension, thereby accelerating mental (vibrational) impulses to end organs, which resulted in increased 'molecular vibrations', friction, heat, and inflammation. In this respect, Palmer's 1910 Chiropractic had retained much of his original theory: '*as ever, Chiropractic was predominantly a theory of inflammation*'. (8)

Palmer's notion of 'tone' provides a theoretical bridge between his concepts of vital (Innate) force and dis-ease in the body via subluxations. Tone, the neurally-mediated health of individual cells and body parts, was construed to originate in the life force known as Innate Intelligence, and to be disrupted by impingement upon nerves. Such impingements, rather than obstructing nerve flow (as in BJ's 'nerve-pinching' notions), caused an increase or a slackening of tension in the nerve, thereby altering the vibrational rate of impulse transmission.

Ironically, much that is potentially testable in Palmer's theories has been forgotten by Chiropractors who focus on musculoskeletal disorders.

As well, after DD's death in 1913, BJ Palmer's simplistic metaphor of '*pressure on the hose*' had replaced DD Palmer's belief in vibrational nerve transmission, aggravated nerve tension, and altered tone. This was a backwards step in the evolution of Chiropractic science.

Many if not most Chiropractors today remain unaware that DD Palmer's Chiropractic theory of inflammation, has been validated as a contributor to many chronic illnesses such as stroke and

7. Palmer, DD, The Chiropractor's Adjuster, Portland Printing House Company, 1910. p.7

8. Keating, Joseph C. Jr., PhD, D.D. Palmer's Forgotten Theories of Chiropractic, A Presentation to the Canadian Memorial Chiropractic College, February 18, 1995.

arthritis. In fact, nearly 100 years afterwards, medical researchers now contend that inflammation is worse for the heart than cholesterol. (9)

According to Dr. Joseph Keating, '*Whether or not Palmer's theories would stand up in light of present day knowledge of neuroanatomy and physiology remains to be seen*'. (10) Fortunately, that day has finally arrived in regards to Type M disorders and there is a promising future for Type O and Type B problems as researchers reveal more of the fascinating aspects of the complex spine and nervous system. (11)

New research now shows that manipulative therapy may also have an effect on Type O (organic disorders). This contention has always certainly been a leap into controversy for many people who are unschooled in neurophysiology that includes most of the medical profession, but modern neurophysiologists now give a clearer understanding of the impact of the spine upon the physiology and homeostasis of the body. And it may have taken a century for science thought to explain DD Palmer's quaint claims.

In 2014 a paper, *Health Neuroscience: Defining a New Field*, by Kirk I. Erickson et al sounds remarkably as if it were written by a group of c\Chiropractors, when in fact four psychologists from *Departments of Psychology* and *Center for the Neural Basis of Cognition* at *University of Pittsburgh* and *Carnegie Mellon University* wrote this novel paper:

> Abstract
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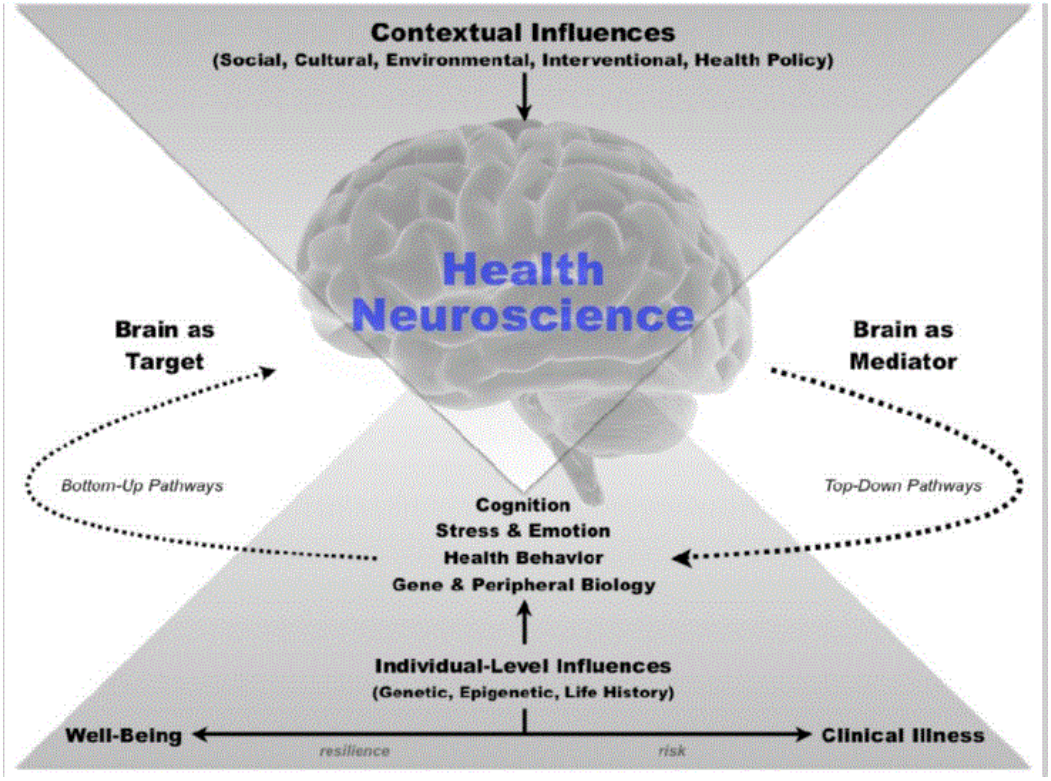
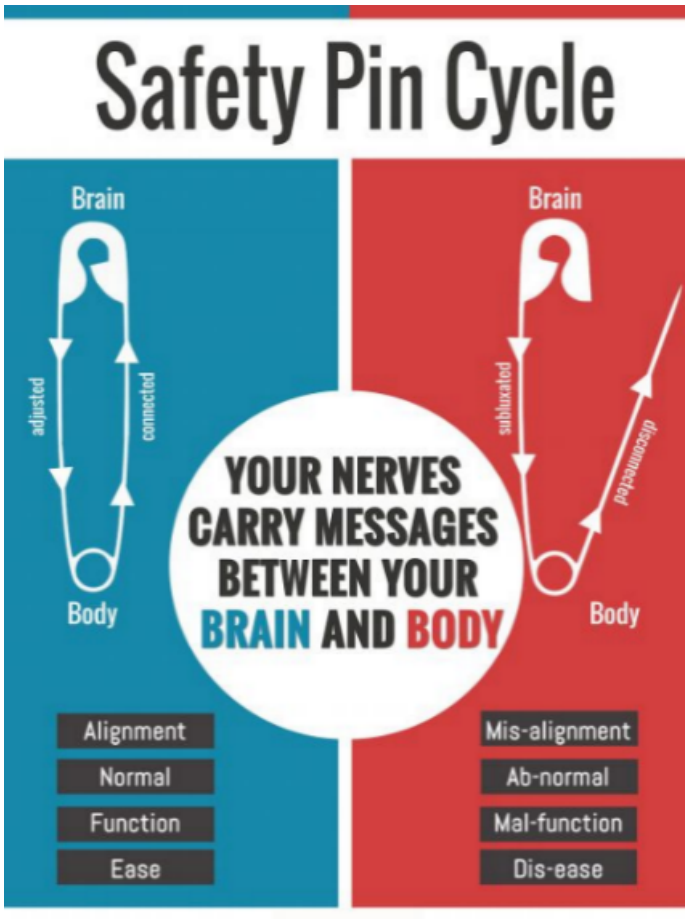
> Health neuroscience is a new field that is at the interface of health psychology and neuroscience. It is concerned with the interplay between the brain and physical health over the lifespan.
>
> Health Neuroscience: Definition and Scope
>
> How does the brain influence physical health? How does physical health influence the brain? We propose that these are inseparable and open questions, and a new field at the interface of health psychology and neuroscience is poised to answer them—a field called health neuroscience. But what is this new field and what are its conceptual themes, goals, and methods? What are its challenges and opportunities moving forward? This review addresses these questions and highlights recent studies illustrating health neuroscience approaches to understanding the dynamic interplay between the brain and physical health over the lifespan.

In fact, long before this Erickson et al. paper was published, chiropractic and other holistic disciplines proposed the same interplay between the brain and overall health.

9. Sesso, Howard D., ScD, MPH; Julie E. Buring, ScD; Nader Rifai, PhD; Gavin J. Blake, MD, MPH; J. Michael Gaziano, MD, MPH; Paul M. Ridker, MD, MPH, C-Reactive Protein and the Risk of Developing Hypertension, JAMA. 2003; 290:2945-2951.
10. JC Keating, "Toward a Philosophy of the Science of Chiropractic," ibid, p. 30.
11. HH Taylor, B Murphy, Altered Sensorimotor Integration with Cervical Spine Manipulation. J Manipulative Physiol Ther. 31/2 (Feb 2008):115-26.





The *Safety Pin Cycle*, a 1917 attempt by BJ Palmer to illustrate the somatovisceral reflex, seems to be a forerunner to the 2014 illustration of Erickson's *Health Neuroscience: Defining a New Field*.

The treatment by manipulation of Type O disorders has been supported by clinical experience and case reports according to an *article* in the *Annals of Internal Medicine* by William Meeker, DC, MPH, and Scott Haldeman, DC, MD, PhD, FRCP(C). (12) These include randomised clinical trials for primary dysmenorrhea, (13, 14) hypertension, (15, 16) chronic asthma), (17, 18, enuresis, (19) infantile colic, (20) and premenstrual syndrome.(21) '*The outcomes of these completed studies have provided varied but promising results*', according to the authors.

One mechanism mentioned by Haldeman involved the possible ability of manual therapy to influence reflex activity in the central nervous system. This somatovisceral reflex, in his view, holds possibly the greatest interest for those trying to establish a role for manual therapy like Chiropractic care for Type O complaints (22) The suggestion is that sensory input to one part of the nervous system can influence physiologic function in other parts of the body.

The original and rather archaic '*pinched nerve*' theory has been abandoned and replaced by the '*reflex-based*' theory. While this was investigated by the New Zealand Commission in 1978-79, it too has been modified by recent investigators. (23)

The '*somatovisceral reflex*' or in regard to the spine, the '*spinovisceral reflex*,' is at the core of this explanation. Spinovisceral reflexes refer to a specific type of somatovisceral reflex that stems from the spinal components. Reflex effects have been demonstrated throughout the cardiovascular system, in the digestive system, urinary system, endocrine system, and immune system, which explains why many patients, 7% in the New Zealand Inquiry, admitted they felt improvement after chiropractic care. (24)

Recent research by Brian Budgell DC, supports an explanation for the neurophysiologic concept that abnormal stimulation of spinal or paraspinal (brain) structures may lead to reflex

12. WC Meeker and S Haldeman, "Chiropractic: A Profession At The Crossroads Of Mainstream And Alternative Medicine," American College of Physicians-American Society of Internal Medicine, Ann Intern Med. 136 (2002):216-227
13. MA Hondras, CR Long, PC Brennan, "Spinal Manipulative Therapy Versus A Low Force Mimic Maneuver For Women With Primary Dysmenorrhea: A Randomized, Observer-Blinded, Clinical Trial," Pain 81 (1999):105-14. [PMID: 10353498]
14 . K Kokjohn, DM Schmid, JJ Triano, PC Brennan, "The Effect Of Spinal Manipulation On Pain And Prostaglandin Levels In Women With Primary Dysmenorrhea," J Manipulative Physiol Ther. 15 (1992):279-85. [PMID: 1535359]
15. JP Morgan, JL Dickey, HH Hunt, PM Hudgins., "A Controlled Trial Of Spinal Manipulation In The Management Of Hypertension," J Am Osteopath Assoc. 85 (1985):308-13. [PMID: 3900016]
16. RG Yates, DL Lamping, NL Abram, C Wright, "Effects of Chiropractic Treatment On Blood Pressure And Anxiety: A Randomized, Controlled Trial," J Manipulative Physiol Ther. 11 (1988):484-8. [PMID: 3075649]
17. J Balon, PD Aker, ER Crowther, C Danielson, PG Cox, D O'Shaughnessy, et al. "A Comparison Of Active And Simulated Chiropractic Manipulation As Adjunctive Treatment For Childhood Asthma," N Engl J Med. 339 (1998):1013-20. [PMID: 9761802]
18. NH Nielsen, G Bronfort, T Bendix, F Madsen, B Weekes, "Chronic Asthma And Chiropractic Spinal Manipulation: A Randomized Clinical Trial," Clin Exp Allergy. 25 (1995):80-8. [PMID: 7728627]
19. WR Reed, S Beavers, SK Reddy, G Kern, "Chiropractic Management Of Primary Nocturnal enuresis," J Manipulative Physiol Ther. 17 (1994):596-600. [PMID: 7884329]
20. JM Wiberg, J Nordsteen, N Nilsson, "The Short-Term Effect of Spinal Manipulation in the Treatment of Infantile Colic: A Randomized Controlled Clinical Trial with a Blinded Observer," J Manipulative Physiol Ther. 22 (1999):517-22. [PMID:10543581]
21. MJ Walsh, BI Polus, "A Randomized, Placebo-Controlled Clinical Trial On The Efficacy Of Chiropractic Therapy On Premenstrual Syndrome," J Manipulative Physiol Ther. 22 (1999):582-5. [PMID: 10626701]
22. BD Inglis, B Fraser, BR Penfold, Commissioners, Chiropractic in New Zealand Report 1979, PD Hasselberg, Government Printer, Wellington, New Zealand, (1979):101-2
23. D Nansel and M Szlazak, "Somatic Dysfunction And The Phenomenon Of Visceral Disease Simulation: A Probably Explanation For The Apparent Effectiveness Of Somatic Therapy In Patients Presumed To Be Suffering From True Visceral Disease," JMPT 18/6 (July 1995):379-397.
24. A Sato, Y Sato, RF Schmidt, "The Impact of Somatosensory Input on Autonomic Functions," Reviews of Physiology Biochemistry and Pharmacology 130 (Berlin, 1997):1–328.

responses of the autonomic nerve system, which in turn may alter organ function. (25) In other words, a back injury can cause the nerves in that region of the spinal column to have a reflex reaction in the organs that are innervated by them.

This is where Chiropractic care can help patients with misdiagnosed problems who are not responding to medical care. For many, examination of the somatic system of the spinal column (muscles, joints, nerves, and ligaments) can hold the answer to visceral conditions that are unresponsive to medical care.

Consider, for example, a neurogenic cause of a heart attack. Most understand that one sign of a heart attack is referral of pain into the chest wall and down the left arm. Many patients think they are having a heart attack when this type of pain strikes them. They have the electrocardiogram (ECG) and cardiac catheterisation (heart cath) only to be told everything is okay, but they remain in pain. Once again it may be condition known as spinovisceral reflex stemming from the spine.

Drs Dale Nansel and Mark Szlazak from *Palmer College of Chiropractic-West* in San Jose, California, did an in-depth study of somatovisceral theories of over 350 articles spanning the last 75 years and found that it has been firmly established that somatic dysfunction is notorious in its ability to create obvious signs and symptoms that can mimic or simulate rather than cause internal organ disease. In fact, they believe as much as 10% of supposed heart attacks may be caused by this syndrome. (26) This is a huge revelation that may affect thousands of people who think they are having a heart attack, but are having a spinovisceral reflex that spinal adjustments may help.

During the Wilk v. AMA trial, witness John Mennell MD, used the term '*cardiac invalid*' to describe patients suffering from referred chest pains due to spinovisceral reflex. '*They are being given drugs for something they do not have because the cardiologist thinks it is angina and what it is, in fact, is referred pain*'. (27)

In his closing argument at the Wilk trial attorney George McAndrews summarised this problem of referred pain being misdiagnosed by MDs and the frustration by patients:

> 'You remember Dr Mennell and Dr Haldeman on referred pain. They referred to a person who goes to a medical physician and he has a Type O disorder and the medical physician not having been trained in school to look for joint dysfunction or neurological components to a disease process will take care of the patient chemically and in a great number of cases that's totally adequate.
>
> 'But when the medical physician runs into what they call "crocks", hypochondriacs or malingers, the patient who doesn't get well under that chemical care. Dr Mennell says that's because they have been misdiagnosed. They have been told they have kidney problems, angina, liver disease, and they do not.
>
> 'What they have is an aberrant neurological signal coming from another portion of the body that gives all of the indicia that a diagnostician would define as an organic problem. They go to the medical physician and in desperation finally say, "*You cannot help me*". They go to the Chiropractor who manipulates the spinal vertebrae and removes the referred pain syndrome.

25. BS Budgell, "Reflex Effects Of Subluxation: The Autonomic Nerve System," J Manipulative Physiol Ther 23/2 (Feb. 2000):104–6.
26. D Nansel and M Szlazak, "Somatic Dysfunction And The Phenomenon Of Visceral Disease Simulation: A Probably Explanation For The Apparent Effectiveness Of Somatic Therapy In Patients Presumed To Be Suffering From True Visceral Disease," JMPT 18/6 (July, 1995):379-397.
27. G McAndrews closing argument, Wilk v. AMA, p.6809.

> 'The patient walks out saying, "*The medical physician told me I had liver disease, kidney disease, bladder disease. I went to the chiropractor and in two adjustments he cured me of my disease.*"
>
> 'Now where is the problem? The problem is that because the medical profession has failed to even look for this referred pain syndrome and has no knowledge of spinal manipulative therapy, so they have told that the patient they have a disease and when they cannot help them, the patient still has the problem, but the medical profession labels them crocks, malingerer, or hypochondriac.
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> 'This is a problem. It is referred pain, and this is another reason why you have to have cooperation. Somewhere along the line those people, as Mennell says, become cardiac invalids'. (28)

Other researchers speak of misdiagnoses stemming from the referred pain caused by spinovisceral reflexes that mimic organic problems. In their research, Drs David Seaman and James Winterstein suggest that spinovisceral reflex caused by spinal joint complex dysfunction should be included in the differential diagnosis of pain and visceral symptoms because '*joint complex dysfunction can often generate symptoms which are similar to those produced by true visceral disease*'. (29)

Research in the 1960-70s by Irvin M Korr, PhD, from *Princeton University* introduced a new concept in neurophysiology concerning the trophic function of nerves. He and his associates produced exciting work revealing that nerves not only conduct bio-electrical impulses to tissues but also supply chemical nourishment to organs through continuous transfer of proteins and other substances along the nerve fibres by altering the neurochemicals that flow along the nerves themselves.

This research demonstrated that nerve compression may interrupt or reduce the axoplasmic flow of material from nerve to muscle, influencing muscle structure, excitability, contractile properties, and metabolism. Korr postulated that one mechanism by which spinal manipulation achieves its effects may be by removing this obstruction to trophic function in compromised nerves: (30)

> 'Deformations of nerves and roots, such as compression, stretching, angulation, and torsion that are known to occur all too commonly in the human being...are subject to manipulative amelioration and correction'. (31)

Aside from disruption of axoplasmic flow along the nerves, Korr also mentioned the disturbance primarily at the spine would cause 'cross-talk' of meaningless commands by joining the real nerve commands with 'gibberish' causing uncoordinated motor and autonomic responses. In turn, this might cause disruption in the function of organs and muscles; therefore, therapy like spinal adjustments to correct vertebral subluxations directed at reducing the gibberish in the affected sympathetic pathways is often helpful. (32)

In this light, DD Palmer's quaint concept was not too distant from Korr's concept of gibberish: 'In disease, mental impulses are not impeded, hindered, stopped or cut off, they are modified. An

28. Ibid. p. 6807-09.
29. DR Seaman and JF Winterstein, "Dysafferentation: A Novel Term to Describe the Neuropathophysiological Effects of Joint Complex Dysfunction. A Look at Likely Mechanisms of Symptom Generation," JMPT 21/4 (May 1998):267-80.
30. IM Korr, "The Collected Papers of Irvin M. Korr," American Academy of Osteopathy, Newark Ohio (1979)
31. IM Korr, GSL Appeltauer. "Trophic Functions of Nerves," In: Beal MC, ed. 1994 Yearbook: Louisa Burns Memorial. Indianapolis, Ind: American Academy of Osteopathy; (1994):52 -60.

32 V Strang, ibid. p. 57.

impingement does not obstruct; it is either an excitor or a depressor'. (33) While this explanation of neurophysiology may be simplistic by today's standards, it certainly was not conceptually much different to Korr's concept.

The founder of osteopathy, Andrew Still, also alluded to axoplasmic flow and attributed the cause of dysfunction to 'partial or complete failure of the nerves to properly conduct the fluids of life'. (34)

The classic Chiropractic paradigm

Let me give you the chiropractic model of spinal care and overall health from a classical chiropractor's perspective. Rather than looking at only the anatomy of the spine, the joints, discs, and muscles, let us look at what happens inside the spinal column to the nerve system.

Indeed, this may be the first time you've ever been told the complex scientific basis behind Chiropractic care, even for those who have seen a Chiropractor for 'back attacks'. It has been the bane of this profession that many Chiropractors don't teach the logic and science of Chiropractic care. Too often I've heard patients say 'I believe in chiropractic' but it is more important for them to understand it on a higher level than just pain management as it now is regarded.

Just as medicine's model of disease has evolved from 'bad spirits' to 'germs' to 'genetics', so too has the Chiropractic model of disease and health changed over the last century. Indeed, today's Chiropractic is not what your grandfather knew, nor is it what DD Palmer tried to explain in his 'quaint' terminology.

> 'Is it possible that the science of Chiropractic has arrived before its time?' (1)
>
> DD Palmer, Founder of Chiropractic

The madness to our method

If you were to ask generally what most Chiropractors do, the typical response would be simply, '*They crack bones to help back pain and pinched nerves*', which makes me cringe when I hear that so let me clarify: we don't crack bones, but we do adjust spinal joints to alleviate pain and other neurological disorders that may accompany an injured, subluxated, or malfunctioning spine.

Obviously, there's more to our science than popping joints, but that's a good place to begin; indeed, why do Chiropractors focus on the spine to correct subluxations and why do most Chiropractors not talk about health or disease solely as a function of germs or blood chemistry, the typical medical explanation for health and disease? These are essential differences to understand.

Chiropractic is a school of thought and not merely a treatment method. It is a method of analysing health and disease from the perspective of your spine and nerve system rather than your blood as the medical profession primarily does. But don't fall into the 'allopathic trap' and think there is a specific adjustment for a particular problem as the medical profession offers a specific drug for an illness.

33. DD Palmer, ibid. p. 57.
34. AT Still. Autobiography of Andrew T. Still. Kirksville, Mo: AT Still; 1897.
35. DD Palmer, The Chiropractor's Adjuster: The Text-Book of the Science, Art and Philosophy of Chiropractic (Portland, Oregon: Portland Printing House) (1910):847

Virgil V Strang DC, longtime instructor and past president of *Palmer College of Chiropractic*, explained the philosophy behind the chiropractic method:

> 'Nobody in his right mind claims to have the cure for any ailment. Nothing is a certainly in the health care field. Furthermore, nothing could be more misleading than to talk or write about Chiropractic as though it were capable of being targeted at specific diseases. It is wrong to suggest directly or indirectly to patients that here is a headache adjustment, a diarrhoea adjustment or a menstrual cramp adjustment. Often what results in a correction for one patient, requires a different approach for the next. Chiropractic does not stimulate or suppress the nervous system as does medicine. Chiropractic normalises the nervous system.
>
> 'To do this, the Chiropractor must consider much more than the symptoms; the Chiropractors must consider what biomechanical problem is involved in causing or perpetuating the problem. Since any of several reflex patterns can cause a particular symptom, variety of biomechanical problems must be considered in any given case. While we can readily identify the final common pathway that is contributing to the dysfunction, we cannot with certainty surmise the reflex route that is the source of the problem.
>
> 'So what can a Chiropractor honestly say or write about the services offered to patients? First, it can be said that the Chiropractor seeks to normalise the nervous system by finding and removing subluxations that are disturbing neurophysiological function. Second, it can be noted that patients frequently report that after receiving Chiropractic care for a subluxation, various symptoms diminish or disappear. Third it can be related that some of the more common symptoms which historically have brought patients to Chiropractors offices include: pain (neck, back, arm, hand, leg), numbness, burning and tingling (arm, hand, leg), headaches, menstrual cramps, abnormal length of menstrual cycle, gastritis, diarrhoea, constipation, bed wetting, hypertension, nervousness, asthma, and vertigo. Fourth, Chiropractic is not a panacea; therefore, in some cases patients will be referred to appropriate specialists.
>
> 'Whether it is in conversations with new patients, in brochures in the office literature rack, in public lectures, or in mass media advertising, the Chiropractor should avoid giving the impression that the adjustment corrects the disease. In truth, the adjustment corrects the subluxation. While this may clear the way for the nervous system and the associated homeostatic processes to restore health, the adjustment does not have a direct relation to the banishment of a disease. To be forthright on this matter dos not weaken the case for the Chiropractic adjustment. In fact, it calls attention to the broad attributes of the adjustment. The adjustment, by normalising the body's nervous system, restores coordination to the body's far-reaching system of homeostasis'. (36)

Obviously there is a huge night-to-day difference in the philosophies of medicine and Chiropractic. As DD Palmer wrote '*Chiropractic is not a branch of medicine. There is no more resemblance between Chiropractic and medicine than there is between a Chiropractor's office and a drug store*'. (37)

Not only is there a different medium, for example, blood versus nerves, but there is a different outlook on the entire healing process as Strang explains.

36. Strang, VV. Essential principles of chiropractic, Palmer College of Chiropractic, Davenport, 1984. p. 126.
37. DD Palmer, The Chiropractor's Adjustor, p. 233.

Let me begin this discussion on the 'madness to our method' by stating there are different levels of healing that chiropractors focus upon; the physical and mechanical problems of the spine, the neuromusculoskeletal issues that cause problems like sciatica, radiating arm pain, and headaches, the spinal reflex and neurochemical aspects that remain only partially explainable by today's science, and the intangible issues like wellness, vim, vigour, and vitality that are virtually unexplainable.

Remarkably, it is a factor of health and wellness that is constantly overlooked by the medical profession and the media.

Dr. Erickson et al. further stated in Health Neuroscience: Defining a New Field:

> 'More precisely, health neuroscience can be defined as an emerging field focused on understanding how the brain affects and is affected by physical health. This definition artificially splits the brain from the other organs of the body; however, we make this conceptual separation because both research and education in neuroscience and psychology has traditionally been conducted independently from other fields of physiology and medicine. It is precisely this false distinction between the brain and body that research in health neuroscience is positioned to refute.
>
> '… health neuroscience approaches may conceptualise the brain as a target organ that is affected by health states via 'bottom-up' pathways. For example, health neuroscience studies may examine changes in brain structure and function that result from smoking, systemic inflammation … '

Chiropractic for heart health

Research by HT Vernon DC, PhD, and MS Dhami PhD, perhaps best summarises the impact of the effects of spinal adjustments upon the whole body:

> 'There is now good evidence that spinal adjustment decreases pain, increases range of movement, increases pain tolerance in the skin and deeper muscle structures, raises beta-endorphin levels in the blood plasma and ... has potent impact on a variety of nerve pathways between the soma and viscera that regulate good health'. (38)

Not surprisingly today, most Americans have fallen into the allopathic trap about their health analysis, depending solely upon blood analysis as the guiding factor in their diagnosis. Not only do organs require proper blood flow to function, but more so, proper nerve energy also is required to sustain the organs. Few people understand that the essential blood flow is also controlled by the nerve system and, thus, any interference in these regulating nerves can cause blood circulation problems.

Once again, let Dr. Vernon explain this physiological fact:

> Every function in the human body, be it conscious or otherwise, depends upon nerve energy. This energy has its source in the cells of the brain and spinal cord. Even the caliber of the blood vessels throughout the entire body is under the control of the nervous system. The blood aspect of disease permits the use of an interesting illustration which applies to many other disease processes.
>
> For example, if the nerves supplying the blood vessels are disturbed, then normal generation, transmission, distribution, or expression of the nerve energy is interfered with, and the vessels become either contracted or dilated as the case may be. This contraction or dilation prevents normal blood circulation, and this insufficient or

38. HT Vernon, MS Dhami et al., "Spinal Manipulation and Beta-Endorphin: A Controlled Study on the Effect of a Spinal Manipulation on Plasma Beta-Endorphin Levels in Normal Males," J. Manipulative Physio Ther 9/2 (1986): 115-123.

> excessive blood supply, technically known as ischaemia or hyperaemia, may cause the organ which it supplies to become diseased.
>
> It should be understood that this is merely one of the many possibilities of nerve disturbance: What applies to this, likewise applies to all the nerves that regulate the ductless glands, the digestive and respiratory systems, and every other tissue, gland, organ, and system in the body. Interference with the nerve supply may cause disease in any of these tissues, glands, organs, and systems. (39)

As proof in point, in December 1989 a provocative article by Mark E Jarmel DC '*Possible Role of Spinal Joint Dysfunction in the Genesis of Sudden Cardiac Death*' broached the relationship between heart attack and the spine. (40) He noted that sudden cardiac death causes about 15% of all natural fatalities in the industrially developed countries. In the United States alone, it claims over 400,000 lives each year. Anecdotal reports from the Chiropractic and Osteopathic professions have indicated the beneficial effects of manipulation in the management of arrhythmias, coronary arterial spasm, and premature ventricular contractions. Jarmel's study suggests that nerve irritation from the spine will cause heart problems:

> 'Numerous researchers have concluded that strategies for prevention of sudden death should be focused on controlling neurophysiologic factors which may enhance ventricular vulnerability. By removing a source of destabilising neural input to the heart, correction of vertebral dysfunction may prove of value in reducing susceptibility to sudden cardiac arrest'. (40)

Explaining organ function, dysfunction, or failure because of vertebral subluxation is conceptually alien to the allopathic mindset and often is too high-tech for most lay people to understand. Few people ever think of heart disease in terms of dysfunction of their nervous system. Instead, they focus on other important contributors such as smoking, lack of exercise, junk foods, emotional stress, and the 'bad blood' concepts like cholesterol and triglyceride levels.

Even being physically fit and eating correctly may not be enough assurance to avoid a sudden heart attack. Jarmel noted in his study of 79 cases of sudden cardiac death in people 18-35 years of age, three of them were competitive athletes. '*This may suggest*', according to Jarmel, '*that so-called "physical fitness" may provide little cardiovascular protection when asymptomatic coronary artery disease is combined with neurally induced vasomotor disturbance*'. In other words, it is equivalent to a race car with a big engine that fails because of 'shorts' in a faulty electrical wiring although nothing is mechanically wrong with the engine itself.

Jarmel's main premise that nerve irritation may lead to a sudden heart attack and that spinal adjustments may help alleviate or prevent such problems should come as no surprise to any Chiropractor or researcher with an understanding of neurophysiology and spinal mechanics.

Along the same concept by Korr concerning ectopic gibberish, another article by Jarmel along with Judith Zatkin, PhD of *Cleveland College of Chiropractic* in Los Angeles titled '*Improvement of Cardiac Autonomic Regulation Following Spinal Manipulative Therapy*' suggests the magnitude of this problem.

Their paper mentioned a trial about heart conditions and Chiropractic care, which may substantiate the claim of vertebral subluxations as a plausible explanation of sudden heart attacks:

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39. Vernon, ibid.
40. ME Jarmel."Possible Role of Spinal Joint Dysfunction in the Genesis of Sudden Cardiac Death," Journal of Manipulative and Physiological Therapeutics, 12/6 (Dec. 1989).

> 'Unbalanced activation of cardiac sympathetic nerves plays a crucial role in the pathogenesis of sudden cardiac death. It has been proposed that mechanical irritation of upper thoracic vertebral joints may create an ectopic source of unbalanced cardiac sympathetic nerve activation. Spinal manipulative therapy is hypothesised to modulate mechanically induced sympathetic activity by restoring proper mobility to dysfunctional vertebral joints. This study evaluated the possibility that spinal manipulative therapy may have value in treating a previously unrecognised source of unbalanced cardiac autonomic regulation.
>
> 'Eleven patients without a prior history of myocardial infarction who were found to have signs of dysrhythmic abnormalities on Holter monitoring, received a one month course of Chiropractic manipulative treatment. After one month of spinal manipulative therapy, follow-up 24 hour ECG recordings were performed. A positive trend was noted in the number of ventricular beats, number of ischaemic events, maximum time of ST segment depression, elimination of after-depolarisations, and enhanced heart rate variability. These preliminary results suggest that spinal manipulative therapy may significantly enhance cardiac autonomic balance.
>
> 'The results of this study suggest that upper thoracic spinal joint dysfunction may be a previously unrecognised source of cardiac sympathetic activation. The results of this study may have implications for developing a novel non-pharmacological treatment which may have value in reducing risk of sudden cardiac death'. (41)

Again, it appears the more research is done, the more it leads to DD Palmer's early but quaint ideas of '*functionating*' and '*tone*' that are affected by nerve interference from the spine.

Rebooting the brain

The research is clear that Chiropractic care is effective for most Type M back pain disorders, and the emerging research on spinovisceral reflexes and Type O disorders is promising. There is another benefit from Chiropractic care that I have taken the liberty to label Type B, disorders of the brain stemming from spinal issues. Although much research must and will be done, the emerging neuroscience reveals more about the value of Chiropractic's type of spinal care than even DD Palmer might have expected.

There are many emerging models in neurophysiology that indicate how the central nervous system is affected by the altered mechanics of the spine. The more neuroscientists discover, the clearer it becomes that many health problems can be triggered by spinal stresses. Even the memory of a spinal injury can lead to non-specific low back pain from altered nervous system processing.

Not only can spinal dysfunction affect organ physiology by way of spinovisceral reflexes or axoplasmic flow, research in a new trial study has now shown that back problems may also affect the cortical circuitry functioning and the actual size and health of the brain itself.

Scientists have long understood prolonged mental stress can cause cortical problems and immune cells to age prematurely. In a study of mothers of chronically ill children that required constant care, the cells of the most stressed-out women showed signs of about ten years' worth of accelerated aging. (42)

41. M Jarmel, J Zatkin, et al., "Improvement of Cardiac Autonomic Regulation Following Spinal Manipulative Therapy," Cleveland College of Chiropractic, LA, a paper presented at the Conference Proceedings of the Chiropractic Centennial Foundation, July 6-8, 1995.
42. ES Epel, E H Blackburn, J Lin, FS Dhabhar, NE Adler, JD Morrow and R Cawthon, "Accelerated Telomere Shortening In Response To Life Stress," PNAS 101/49 (December 7, 2004)

Now other researchers have discovered back pain stress also causes the brain circuitry to malfunction and actually degenerate. These are the Type B disorders that have never been understood until recently with the use of EEG and MRI scans, and these findings open up an entirely new array of possible help for many 'mental' patients by Chiropractic care.

Often patients will tell their Chiropractors after receiving a cervical adjustment '*I can think more clearly now*'. Although this is a common reaction many Chiropractors have heard before, the explanation of this phenomenon was unknown until it caught the interest of two Chiropractors-turned-researchers in New Zealand who found a novel explanation.

Dr Heidi Haavik DC, PhD and Dr Bernadette Murphy DC, PhD from the *New Zealand College of Chiropractic in Auckland*, conducted a study consisting of 24 patients with a history of neck stiffness and sometimes neck pain (but sometimes no neck pain) that measured the central nervous system activity in the brainstem and spinal cord of the participants before and after cervical adjustments. (43)

Since the nerve system is often equated to the body's own computer, sometimes our brain malfunctions just like a computer and we need to reboot the hard drive to clean up and clear out the accumulation of unnecessary nerve "gibberish" caused by vertebral subluxation and spinal lesions.

This remarkable study found that the sensitive measurements in the brain (called sensory evoked potentials) indicated that neck adjustments may '*reboot the nervous system*' to help it to function better. This is the first time that anyone has used electroencephalograph (EEG), incidentally, a diagnostic machine invented by BJ Palmer, (44) to prove that there are definite changes to the way the brain processes information after chiropractic care.

Haavik has spent years researching the effects of Chiropractic adjustments on the nervous system. In her latest research, she and Murphy were able to measure how brain waves are altered before and after spinal adjustments.

> 'The process of a spinal adjustment is like rebooting a computer. The signals that these adjustments send to the brain, via the nervous system, reset muscle behaviour patterns', said Haavik. 'By stimulating the nervous system we can improve the function of the whole body. This is something that chiropractors and their patients have known for years; and now we have some scientific evidence to prove it'. (45)

In computerese, the technical language of those involved in computer technology, this resembles 'GIGO' which stands for 'garbage in, garbage out'. In other words, when there is nerve interference or gibberish due to vertebral subluxations, this causes the brain to change its feedback to the viscera and muscles.

According to Haavik:

> It is a bit like trying to do homework with the radio blasting in the background, plus the TV going at full volume as well. Harder to concentrate and get it right. Because the dysafferentiation is coming from the spine, which changes the way the CNS interprets and controls the rest of the body, even though the rest of the body may well be sending perfectly accurate afferent info. (46)

43. HH Taylor, B Murphy, "Altered Sensorimotor Integration with Cervical Spine Manipulation," J Manipulative Physiol Ther. 31/2 (Feb 2008):115-26.
44. JC Keating, B.J. of Davenport: The Early Years of Chiropractic, (1997):279.
45. Press Release: "New Science Behind Chiropractic Care," NZ Chiropractors Association, (January 27, 2008)
46. H Taylor via private communication with JC Smith on 5-18-2010.

In this Haavik and Murphy study, after Chiropractic adjustments of the cervical spine the nervous system firing patterns became more normal, suggesting that the brain can relearn normal firing patterns, thereby improving the person's overall functioning. Obviously, the loss of the central nervous system's ability to adapt and recover with an impaired homeostasis regulation has now become a critical lynch pin in maintaining good health.

It may have taken over 100 years to come to this milestone, but this work by Haavik and Murphy may confirm what DD Palmer said about '*functionating*', a concept he intuitively understood but had no means to prove it without the high-tech tools that are now available.

The shrinking brain

Aside from re-booting the brain with spinal adjustments, other research shows another Type B disorder stemming from the spine has an impact upon the chemistry of the brain and nerve system.

Unlike the dry electrical system in your home, the human electrical system is bathed with neurochemicals that influence the action of the nerve system which, in turn, affects the function of organs and your homeostasis. The brain is more than a source of electrical conduction like a battery; it is an organ that secretes chemicals to change the action of your organs and body.

Researchers now better understand how the alterations of neurochemicals and hormones influence the physiology of your overall health. Nerves secrete chemical substances called neurotransmitters that are endogenous chemicals that relay, amplify, and modulate signals between a neurone and another cell. Neurotransmitters are stored in nerve endings or terminals located in the brain. They are also found at the axon endings of motor neurones, where they stimulate muscle fibres to contract. They and their close relatives are produced by glands such as pituitary and adrenal glands.

The brain controls the regulation of your body functions via these neurotransmitters that have different actions. The problem of some disorders begins when these hormones are out of control or balance due to diet, lack of exercise, depletion of vitamins, stress, or spine injury, which is a relatively new concept.

> Unlike other parts of the neuromusculoskeletal system, the spine is complex with hundreds of joints supported by 5 layers of soft tissues. Few people have any idea the spinal column is a precarious weight-bearing pillar of 364 joints, 24 vertebrae, and 23 cartilaginous disks that act as shock absorbers/spacers. This joint total includes all synovial, symphysis and syndesmosis joints according to Gregory D Cramer DC, PhD, Dean of Research at *National University of Health Sciences*. (47)

Aside from the brain itself, when the central nervous system, spinal cord, and peripheral nerves are included, the spine is the most complicated entity in the human body. Any study of this cortical-spinal system is a multifaceted task that stretches the furthest reaches of science today, and pushes the smartest researchers to their intellectual limits.

Exciting new research by A Vania Apkarian PhD, from *Northwestern University* has shown the impact of pain upon brain tissue in ways never known before, including creating 'noise' similar to the 'gibberish' mentioned by Haavik and Murphy:

> Moreover, psychological research and recent investigation of neurophysiological processes in chronic pain highlight the fact that the pain of many patients with NSLBP

47. Cramer, G.; Darby, S. 2014 Clinical anatomy of the spine, spinal cord, and ANS. 3rd Edition, Elsevier/Mosby, St Louis, 559 illustrations, 672pp. Appendix I, pp. 638-42.

> (nonspecific low back pain) depends not only on the 'signal' of a structural lesion in the spine, but also on the 'noise' introduced by altered nervous system processing. (48)

Another factor that influences neurochemistry has been found, but this one starts in your back and ends up affecting your brain. In an article published in *The Journal of Neuroscience*, Dr Apkarian, et al have shown that long standing back pain may lead to altered neurotransmitters and serious brain degeneration. They found in MRI studies that chronic back pain can shrink the brain by as much as 11%, equivalent to the amount of grey matter lost in 10 to 20 years of aging. (49)

Using magnetic resonance imaging brain scan data and automated analysis techniques, chronic back pain patients were divided into neuropathic, exhibiting pain because of sciatic nerve damage, and non-neuropathic groups.

In an interview, Apkarian said:

> 'We basically studied 26 chronic back pain patients … and compared them to 26 normal subjects who had similar age and sex distribution. And we looked at the overall volume of the grey matter of the cortex. And essentially we find significant decrease in the overall volume of the brain grey matter in the back pain patients.
>
> 'Patients with chronic back pain showed 5-11% less neocortical grey matter volume than control subjects. The magnitude of this decrease is equivalent to the grey matter volume lost in 10-20 years of normal aging. The decreased volume was related to pain duration, indicating a 1.3 cm3 loss of grey matter for every year of chronic pain … Our results imply that chronic back pain is accompanied by brain atrophy and suggest that the pathophysiology of chronic pain includes thalamocortical processes'. (50)

Apkarian says one of the areas of the brain impacted by chronic back pain is the prefrontal cortex:

> 'The prefrontal cortex is important because it's a region that has to do with cognition. It's the highest area of the brain and has to do with a lot of decision making, rational thinking, and decisions along those lines. Obviously that's an important area of the brain to become dysfunctional'.

His discovery adds support to the research by Haavik and Murphy's concept of rebooting the brain to think more clearly. Apparently for those who live with chronic back pain, the consequence is not only the 'noise' sensory nerve conduction, but damage to the brain itself. '*The results imply that chronic pain is accompanied by cerebral atrophy*'. (51)

When asked if the brain can regenerate itself, Apkarian answered:

> We don't really know the answer. There are some new studies suggesting that at least some of this loss of tissue might be reversible. There are a couple of studies showing that when the pain is dramatically decreased, some regional grey matter density is recovered. So, some of it is clearly reversible. (52)

48. JP Robins and AV Apkarian, "Low Back Pain," Functional Pain Syndromes: Presentation and Pathophysiology, EA Mayer and MC Bushnell, editors, IASP Press, Seattle, © (2009):23.
49. AV Apkarian et al. "Chronic Back Pain Is Associated with Decreased Prefrontal and Thalamic Gray Matter Density," The Journal of Neuroscience 24/46 (November 17, 2004):10410-10415.
50. B Cosgrove, Northwestern University Newsfeed, Dr. Vania Apkarian on "Chronic Back Pain and the Brain," (November 29, 2004)
51. AV Apkarian, J Scholz, "Shared Mechanisms Between Chronic Pain And Neurodegenerative Disease," Drug Discovery Today: Disease Mechanisms 3/3 (2006):319-326
52. Is It Possible to Regain Brain Tissue Lost to Chronic Back Pain? 26/2, THEBACKLETTER (Jan 2011)

In another study published in 2008, Apkarian et al concluded 'these findings demonstrate that chronic pain has a widespread impact on overall brain function'. (53) In other words, that there is more to a patient's suffering with back pain than merely a hurting sensation called pain, it may become a chemical degeneration of the cerebral cortex:

In conclusion, these findings suggest that the brain of a chronic pain patient is not simply a healthy brain processing pain information, but rather is altered by the persistent pain in a manner reminiscent of other neurological conditions associated with cognitive impairments. (54)

Apkarian says he hopes his study causes those who suffer from chronic back pain to seek out solutions. He explained how chronic pain may be the result of an injury/dysfunction of the spine, or the result of more complex processes involving nervous system processing of sensory information where old '*memory traces*' get stuck in the brain's prefrontal cortex, which controls emotion and learning. This process is called neuroplasticity and may explain how an acute problem becomes a chronic, painful problem despite being completely healed. (55)

'In some way, you can think of chronic pain as the inability to turn off the memory of the pain', said Apkarian. (56) As a result, the brain seems to remember the injury as if it were fresh, even long after it is healed, so some people continue to suffer chronic pain that cannot be totally relieved through traditional analgesic drugs, such as aspirin and morphine derivatives:

> 'You should try to seek ways to reduce the pain, and that one should not live with the pain. The longer you live with the pain, the worse the impact on the brain. So, one needs to actively find methods or therapies that would diminish the suffering as much as possible'. (57)

Of course, we Chiropractors believe '*therapies that would diminish the suffering*' speaks of spinal manipulative therapy.

Perhaps this study affirms that a sequential pattern exists in the brain and nerve system: spinal injuries causing stress creates neurochemical changes and nerve 'noise', and together these chemical and neurological stresses slowly lead to cerebral malfunction that manifests itself first as neurologic and neurochemical disorders and, secondly, as degeneration.

In this light, Chiropractic spinal adjustments to reduce joint dysfunction and eliminate back pain would possibly reduce altered neurotransmitter changes that may cause damage to the brain and, thus, improve the brain circuitry of pain and dysfunction that leads to gibberish and noise.

Chiropractic care for fibromyalgia

Not only can chronic back pain shrink the brain, but other scientists also now believe degenerative disorders of the central nerve system may be responsible for fibromyalgia (FMS).

Researchers found similar degeneration of the brains in women with fibromyalgia, which has traditionally been classified as either a musculoskeletal disease or a psychological disorder. But accumulating evidence now suggests that fibromyalgia may be associated with central nervous system (CNS) dysfunction via altered neurotransmitters stimulated by spinal column lesions or vertebral subluxations.

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53. MN Baliki, PY Geha, AV Apkarian, and DR Chialvo, "Beyond Feeling: Chronic Pain Hurts the Brain, Disrupting the Default-Mode Network Dynamics," The Journal of Neuroscience 28/6 (February 6, 2008):1398-1403
54. MN Baliki, ibid.
55. M Millecamps, MV Centeno, HH Berra, CN Rudick, S Lavarello, T Tkatch, AV Apkarian, "D-Cycloserine Reduces Neuropathic Pain Behavior Through Limbic NMDA-Mediated Circuitry Q," Pain 132 (2007):108–123
56. M Hawryluk , "Managing Pain," The Bulletin, (September 03. 2009) BendBulletin.com
57. Cosgrove, ibid.

In a study published in *The Journal of Neuroscience* in 2007 by Anil Kuchinad et al, MRI scans of the brains of ten female fibromyalgia patients and ten healthy controls found that fibromyalgia patients had significantly less total grey matter volume and showed a 3.3 times greater age-associated decrease in grey matter than healthy controls:

> 'The longer the individuals had had fibromyalgia, the greater the grey matter loss, with each year of fibromyalgia being equivalent to 9.5 times the loss in normal aging. In addition, fibromyalgia patients demonstrated significantly less grey matter density than healthy controls in several brain regions ...The neuroanatomical changes that we see in fibromyalgia patients contribute additional evidence of CNS involvement in fibromyalgia.
>
> 'In particular, fibromyalgia appears to be associated with an acceleration of age-related changes in the very substance of the brain. Moreover, the regions in which we demonstrate objective changes may be functionally linked to core features of the disorder including affective disturbances and chronic widespread pain'. (58)

Fibromyalgia's defining features (chronic widespread pain and tenderness to palpation) may be explained by the mechanism known as '*sympathetically maintained pain*'. After a triggering event (physical or emotional trauma, infections), relentless sympathetic hyperactivity may develop in susceptible individuals. This hyperactivity induces excessive norepinephrine (also known as noradrenalin) secretion that could in turn sensitise central and peripheral pain receptors and thus induce widespread pain and tenderness.

Altered tone is now associated with FMS. Patients with fibromyalgia have relentless hyperactivity of the sympathetic nerve system. Korr referred to this as sympqathicotonia, stating that this long-term hyperactivity may have general clinical significance as well as specific manifestations, depending on which organs or tissues receive innervation from the involved sympathetic pathways. (59)

At the same time, such individuals have sympathetic hypo-reactivity to stress, which could explain the profound fatigue, morning stiffness, and other complaints associated to low blood pressure. This autonomic nerve system dysfunction could induce other symptoms of fibromyalgia such as irritable bowel, urinary discomfort, limb numbness, anxiety, and dryness of the eyes and mouth. (60)

FMS in the medical trap

Drs Michael Schneider, David Brady, and Stephen Perle wrote a compelling paper suggesting that patients with fibromyalgia may often be misdiagnosed. To the average MD, the authors suggest, this presents a 'diagnostic conundrum because of generally poor knowledge about musculoskeletal disorders within primary care medicine'. (61)

Unfortunately, some misinformed MDs like NM Hadler still believe FMS is '*a learned illness, taught over time by a number of actors, including physicians*':

58. A Kuchinad, et al. "Accelerated Brain Gray Matter Loss in Fibromyalgia Patients: Premature Aging of the Brain?" The Journal of Neuroscience, 27/15 (April 11, 2007):4004-4007
59. IM Korr, "Sustained Sympathicotonia as a Factor in Disease." In: IM Korr, ed. The Neurobiologic Mechanisms in Manipulative Therapy. New York: Plenum, (1978):229-268.
60. M Martinez-Lavin, AG Hermosillo, C Mendoza, et al. "Orthostatic Sympathetic Derangement In Individuals With Fibromyalgia," J Rheumatol 24 (1997):714.
61. MJ Schneider, DM Brady, and SM Perle, "Commentary: Differential Diagnosis Of Fibromyalgia Syndrome: Proposal Of A Model And Algorithm For Patients Presenting With The Primary Symptom Of Chronic Widespread Pain," J Manipulative Physiol Ther 29 (2006):493- 501.

> 'Despite a concerted effort for some time, no abnormality in any organ system has been identified as associated with fibromyalgia, nor does one become manifest during its prolonged course. Absence of proof of a pathobiological cause, of course, is not proof of its absence. Some clinical investigators continue to pursue this will-o'-wisp with enthusiasm that far outstrips the yield. Perhaps there is no biological abnormality. Fibromyalgia is a learned illness, taught over time by a number of actors, including physicians'. (62)

Obviously Hadler is caught in the allopathic trap. What he fails to realise is that it may have to do with neurophysiologic disorders as Apkarian, Baliki, Haavik, or Schneider suggest. Instead of looking for a pathoanatomical '*abnormality in any organ system*', he ought to look for the pathophysiological component. Sadly, Hadler's myopia is not uncommon for many medical physicians unschooled in neurophysiology or spinovisceral reflexes.

Unfortunately, the diagnosis of facet and sacroiliac joint dysfunction is not a simple matter for those clinicians who rely solely upon imaging studies because there is not necessarily any pathoanatomical changes in these joints associated with the referred pain patterns. For decades the medical profession believed the sacroiliac joints could not move, which proved to be wrong, and, secondly, because there are no discs in these joints, many ignored the sacroiliac as a source of pain, which is another big trap. (63, 64)

Consequently, these unusual patterns of back or neck pain coupled with negative diagnostic imaging studies might lead the unwary medical clinician to declare FMS as the diagnosis when the pain is emanating from the spinal facet or sacroiliac joints, conditions helped greatly by spinal manipulation. Some physicians believe as Hadler that '*Fibromyalgia is a learned illness*', only to compound the patient's suffering with unnecessary worry and depression.

Schneider and his colleagues concluded:

> 'Lastly, many common musculoskeletal conditions can mimic FMS. It is imperative that the clinician understand the many musculoskeletal sources of unusual referred pain patterns that could be misdiagnosed as FMS. A careful physical examination by a clinician with experience in musculoskeletal differential diagnosis would help to sort out more of these cases, which could potentially reduce the error rate of FMS misdiagnosis…collaborative patient management between clinicians, chiropractors, osteopaths, and physical therapists would seem to be the best way to ensure that patients with these musculoskeletal causes of widespread pain would receive the appropriate diagnosis and therapy, without resorting to a default diagnosis of FMS in all cases of widespread pain'. (65)

To the surprise of many, important guidelines that rely on evidence-based criteria now recommend Chiropractic care for the treatment of fibromyalgia.

The *American College of Occupational and Environmental Medicine* (ACOEM) recommends Chiropractic care in its *Occupational Medicine Practice Guidelines* treatments for several chronic pain conditions including complex regional pain syndrome (CRPS), neuropathic pain, trigger points/myofascial pain, chronic persistent pain, fibromyalgia, and chronic low back pain. The

62. NM Hadler, Stabbed in the Back, Confronting Back Pain In An Overtreated Society, The University of North Carolina Press, Chapel Hill, NC, (2009):25.
63. JL Shaw, "The Role Of The Sacroiliac Joints As A Cause Of Low Back Pain And Dysfunction," proceedings of the First Interdisciplinary World Congress on Low Back Pain and its Relation to the Sacroiliac Joint, University of California, Sand Diego, (Nov.5-6, 1992)
64. R Galm, M Fröhling, M Rittmeister, E Schmitt," Sacroiliac Joint Dysfunction In Patients With Imaging-Proven Lumbar Disc Herniation," Eur Spine J. 7/6 (1998):450-3. Spine Clinic, Bad Homburg, Germany.
65. D M Brady, MJ Schneider, "A New Paradigm For Differential Diagnosis And Treatment," JMPT, 24/8 (October 2001):529-541.

recommendations are based on more than 1,500 references, including 546 randomised, controlled trials. (66)

ACOEM's latest chronic pain guidelines represent a step in the right direction in terms of recognising the value of chiropractic care. The guidelines also recommend manipulation for chronic, persistent low back or neck pain, and cervicogenic headache.

The *American Academy of Family Physicians* (AAFP) published '*Treating Fibromyalgia*' and admitted this elusive disorder is not psychosomatic as Hadler believes, but is directly associated with '*musculoskeletal pain unrelated to a clearly defined anatomic lesion*' and that Chiropractic treatment has proven effective. (67) The AAFP Guideline now recommends Chiropractic treatment for fibromyalgia, citing a pilot study by KL Blunt et al. in which following four weeks of treatment, 21 patients with fibromyalgia improved compared with control subjects receiving medication only. (68)

Again, the mechanism of this improvement, the how and the why, may lie deep within the cranium initiated by neurotransmitters and spinal stress years before; it may be an imbalance of the autonomic nerve system or a spinovisceral reflex, but the evidence suggests that reducing back pain may decrease the degeneration at the core of this malady as Apkarian and Kuchinad suggest. Indeed, these FMS patients may need to reboot their brains via spinal manipulative therapy as Haavik and Murphy recommend removing the gibberish as Korr also mentioned.

The research suggesting chronic back pain may lead to altered circuitry and/or degeneration of the brain is a good example of finally seeing the neurological forest through the anatomical trees.

The research suggesting chronic back pain may lead to altered circuitry and/or degeneration of the brain is a good example of finally seeing the neurological forest through the anatomical trees.

What may have begun as a common childhood fall off a bicycle that injures the spine may later lead to a life of chronic back pain, which in turn may develop into fibromyalgia or degeneration as the researchers now suggest.

Today's explanations of Chiropractic are not the quaint concepts of 'pinched nerves' from yesteryear. Neurophysiologists now suggest the effects of a 'bad back' may lead to a myriad of problems such as somatovisceral reflexes, neuroplasticity, and cerebral degeneration via altered neurotransmitters. In fact, the research vindicates what DD Palmer tried to explain as '*functionating*' although much more has yet to be discovered.

Now you can better understand the complex madness behind Chiropractic's methods. This research now emerging validates the importance of a healthy spine and the role chiropractic care may have upon pain syndromes and organic disorders.

66. Occupational Medicine Practice Guidelines: Evaluation and Management of Common Health Problems and Functional Recovery in Workers, 2nd Edition, 2008 revision.

67. P Millea and R Holloway, "Treating Fibromyalgia," Amer Family Physician 62/7 (Oct 2000)

68. KL Blunt, MH Rajwani, RC Guerriero. "The Effectiveness Of Chiropractic Management Of Fibromyalgia Patients: A Pilot Study," J Manipulative Physiol Ther 20 (1997):389-99.

Chiropractic conclusions

Considering the plethora of new research of the spine, imagine the possibility of problems stemming from a neck or back pain injury:

- Spinal joints become dysfunctional causing pain and stiffness as well as muscle reflex spasms and nerve root compression.
- This may lead to the altered spinal-cortical circuitry issues.
- Nerve compression may lead to nerve and tissue degeneration by the disruption of axoplasmic flow of protein.
- Disturbed neurological conduct results in pathophysiology, disintegration of homeostasis, and eventually the intrusion of disease.
- Prolonged back pain may lead to cortical degeneration and premature aging.
- Nerve interference in the spine may cause somatovisceral or spinovisceral reflex disorders.

Few people understand the enormity of problems that can be generated from back pain. Current research has opened up an entirely new dimension to health and disease, not unlike that of the new science of the human genome. Hopefully, as science discards its institutional bias, it will continue to discover other new aspects of the spine and nervous system's impact upon our health and lives. Indeed, this exciting new research may simply be the tip of the iceberg

> DD Palmer, the Founder of Chiropractic, noted in 1910 the 'entrenched, competition-free position' of the medical society:
>
> '*It is a pity that the medical professionals are possessed of arrogance instead of liberality; that instead of encouraging and fostering advanced ideas, they stifle and discourage advancement; that they only adopt advanced ideas when they are compelled to do so by public opinion*'.
>
> Palmer DD. The Chiropractor's Adjuster: The Text-Book of the Science, Art and Philosophy of Chiropractic Portland, Oregon: Portland Printing House. 1910 pp. 543-9.

In conclusion, DD Palmer was right when he asked, '*Is it possible that the science of Chiropractic has arrived before its time*'? (69)

Imagine the amount of pain and disease that could have been alleviated by Chiropractors if the medical boycott had not forced people into the allopathic trap and prevented people from receiving Chiropractic spinal care. Indeed, the boycott of Chiropractic care caused more than the pandemic of back pain; it has led to possible organic/visceral problems and brain damage beyond imagination.

Now you can understand before state licensure existed to protect Chiropractors when the police came knocking, the pioneer Chiropractors stood their ground despite the skepticism stemming from medical harassment. These stalwarts had seen the remarkable results of their art and fought to maintain its practice despite the arrests, beatings, humiliation, and imprisonment.

69. DD Palmer, The Chiropractor's Adjuster: The Text-Book of the Science, Art and Philosophy of Chiropractic (Portland, Oregon: Portland Printing House) (1910):847

Thankfully, many did survive the medical war to keep alive an ageless healing art for people today to benefit.

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